

#### REMARKS

Claims 2-4, 8, 11 and 12 were canceled previously. Claim 6 is as originally filed, and claims 9 and 10 are as previously presented.

Claims 1 has been amended; no new matter has been introduced.

Method of use claims 13-15 currently stand withdrawn from consideration as being drawn to a non-elected invention. However, in accordance with MPEP §821.04(b), if Applicants elect claims directed to a product which is subsequently found allowable, the withdrawn process claims which depend from or otherwise require all the limitations of an allowable product claim will be considered for rejoinder. Upon rejoinder of claims directed to a previously non-elected process invention, the restriction requirement between the elected product and rejoined process claims will be withdrawn. It is submitted that the method claims as presented require all the limitations of the elected product (compound) claims. Thus, if the product claims are found allowable, the non-elected method of use claims (withdrawn) should be rejoined.

With these amendments, claims 1, 5-7, 9, and 10 are pending.

#### Rejections under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph

Claims 1-8, and 10 stand rejected under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph, for allegedly failing to particularly point out and

distinctly claim the invention. The explanation of this rejection in the Office Action includes a comment that the claims were difficult to classify and/or search. Whether the claims are definite and whether the claims are searchable are two separate issues and should be considered independently.

With respect to the § 112, second paragraph, rejection, Applicants respectfully disagree that the claims are indefinite. However, in order to expedite prosecution of the application, Applicants have introduced several narrowing amendments to the claims. The claims as amended are understandable; their metes and bounds are clear. Whether any particular compound falls within the claims can be readily determined.

In addition, with regard to the search issue, Applicants submit that the claims are amenable to classification as well as searching. However, although they believe the amended claims are readily searchable, Applicants would be happy to have a discussion about the claim scope or search strategies if necessary.

Thus, Applicants submit that the amended claims meet the requirements of the second paragraph of § 112 and respectfully request reconsideration and withdrawal of the § 112, 2<sup>nd</sup> paragraph rejections.

Rejection under 35 U.S.C. § 103(a)

Claims 1-10 stand rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over Published International Application No. WO 02/02512 (Maillard et al.).

The Office argues that Maillard et al. teaches compounds similar to those claimed here and notes that the Maillard compounds are also useful in treatment of Alzheimer's disease. The Office asserts that the only differences between the compounds of Maillard and the present invention are "that applicant claims alkyl instead of H by the prior art" and that "the amine bearing R1 is a 3° instead of 2° amine by the prior art." The Patent Office argument continues that "H and alkyl are art recognized equivalents" and "2° and 3° amines are obvious variants." Applicants respectfully submit that at least part of the reasoning employed by the Office is incorrect.

To simplify the issues here, Applicants will not quarrel with the proposition that "H and alkyl are art recognized equivalents." However, the notion that "2° and 3° amines are obvious variants", Office Action at page 4, is a significant overstatement. The Office relies on *Ex parte Bluestone*, 135 USPQ 199 (BPAI 1961) for its argument about secondary (2°) and tertiary (3°) amines. The pertinent passage from *Bluestone* is reproduced below.

In this case, the difference is primarily the one which exists between a secondary and a tertiary amine. A

case nearly on all fours with this situation is *Ex parte Weston and Hamlin*, 121 USPQ 428, wherein this Board held that mono substituted N' piperazines were not patentable over di-substituted piperazines of the reference because chemists are well aware of the difference between secondary and tertiary amines and their reactivities including the possibility of further substitution for the hydrogen in the secondary amine. This is the substitution that appellant has made in the Alvord compound.

*Ex parte Bluestone*, at 200.

The *Weston and Hamlin* decision referred to in the above passage states similarly that chemists are

"readily aware of the differences between secondary and tertiary amines including their reactivities, particularly with respect to the possibility of further substitution for the hydrogen in the secondary amine."

*Ex parte Weston and Hamlin*, 121 USPQ 428, 430 (BPAI 1958).

The issues in the *Bluestone* and *Weston and Hamlin* decisions were whether N-methyl derivatives (which are tertiary amines) were obvious variants of the corresponding N-H secondary amines because they were homologs. In *Bluestone* the claims encompassed a compound of the formula B1 below while the prior art was characterized as disclosing compounds of formula B2.



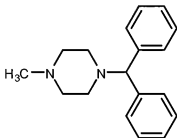
B1



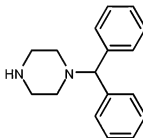
B2

As noted above, the Board in *Bluestone* referred to language in the *Weston and Hamlin* decision that any "chemist is readily

aware of the differences between secondary and tertiary amines." However, that language in *Weston* was only meant to address an argument that secondary amines are capable of undergoing reactions which the tertiary amines are not. In *Weston*, the prior art compound included the N-methyl piperazine shown below as formula W1 while the claims were directed to corresponding N-H compounds, an example of which is shown below as formula W2.



W1



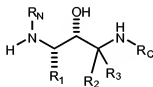
W2

In both of these cases the Board agreed with the Examiners that the compounds were merely homologs of each other.

Neither of these decisions states that secondary and tertiary amines are obvious variants of each other. Both merely state that chemists know of the differences between the two. It is perhaps obvious that a secondary amine may be reacted with another reagent to produce a tertiary amine, but the question here is whether the particular compound resulting from the reaction is obvious. In other words, does the prior art suggest the particular tertiary amine produced from the secondary amine. The answer to that question in the context of analyzing the pending claims is no.

The instant situation is not analogous to either of the situations presented by the *Bluestone* or *Weston and Hamlin* decisions. The claims are not drawn to homologs of compounds disclosed in Maillard et al. The following structures are presented to clearly demonstrate the differences between the claimed compounds and those disclosed by Maillard et al.

Maillard et al. disclose a family of compounds generally represented by Formula X below:



X.

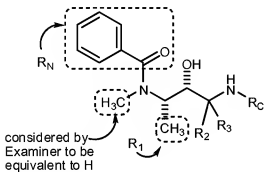
The Maillard et al. disclosure<sup>1</sup> indicates that, with regard to the definition of R<sub>1</sub>, the most simple of these compounds are those where R<sub>1</sub> is methyl, i.e., the definition of R<sub>1</sub> states that it can be C<sub>1</sub>-C<sub>6</sub> alkyl. Further, in its simplest form, R<sub>N</sub> requires a group such as lower alkyl, aryl or heteroaryl, e.g., methyl, phenyl or pyridinyl, linked to the nitrogen atom by, e.g., a carbonyl, a sulfonyl, or an alkylene. The only other group permitted by Maillard et al. on the nitrogen carrying R<sub>N</sub> is hydrogen.

The Examiner states that H (hydrogen) and alkyl are art-recognized equivalents. As noted above, for the purpose of this

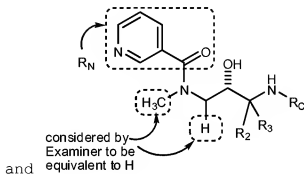
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<sup>1</sup> The nature of the R<sub>C</sub>, R<sub>2</sub>, and R<sub>3</sub> groups is not pertinent to this analysis.

analysis, Applicants will not dispute that point. Thus, following the Examiner's reasoning, compounds that might arguably be considered obvious from Maillard et al. include those having hypothetical formulae M1 and M2:

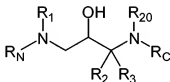


M1



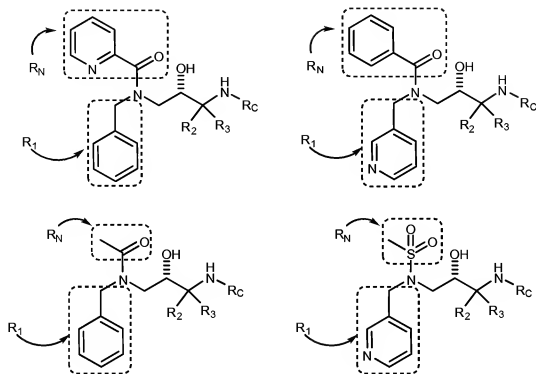
M2.

Applicants amended claims, on the other hand, are directed to compounds of the formula



where both of  $R_1$  and  $R_N$  are groups other than hydrogen or alkyl. Thus, Applicants claims require that the nitrogen carrying  $R_N$  also carry a group  $R_1$ , which is now defined as being selected from aryl, heteroaryl, heterocyclyl, arylalkyl, heteroarylalkyl, and heterocyclylalkyl groups. Each of these includes a ring portion directly or indirectly linked to the 1,3-diaminopropane chain. The definition of  $R_N$  is similar to the Maillard definition of  $R_N$ ; it requires a carbonyl or sulfonyl group carrying a ring group or a group such as lower alkyl. Examples

of this type of compound can be represented by the following formulae:



In addition to the carbonyl or sulfonyl group, these example structures include a benzyl or pyridinyl methyl ( $R_1$ ) group on the nitrogen carrying  $R_N$ . The structures shown above are not suggested by Maillard et al., or by either of hypothetical formulae M1 or M2. There is simply nothing in the Maillard et al. reference that can be considered to suggest the placement of a group such as benzyl on the  $R_N$ -carrying nitrogen.

Knowing that the Maillard compounds are secondary amines does not render the compounds of the instant claims obvious. Although chemists certainly know of the differences between the Maillard secondary amines and a tertiary amine, and that such



secondary amines could certainly be treated with a reagent to produce a tertiary amine, the Maillard disclosure does not suggest the particular modifications necessary to result in the claimed compounds. Maillard et al. does not suggest that the nitrogen carrying  $R_N$  can also carry the groups within the definition of  $R_1$ .

It is perhaps obvious that a secondary amine may be reacted with another reagent to produce a tertiary amine, but the question here is whether a particular compound resulting from that type of reaction is obvious. In other words, does the prior art suggest the particular tertiary amine produced from the secondary amine? The answer to that question in this situation is no. Maillard et al. simply do not suggest the particular substitution pattern required by  $R_1$  and  $R_N$  in the instant claims.

Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection based on 35 U.S.C. § 103(a).

Allowance of the claims and passage of the case to issue are respectfully solicited. The Applicants urge the Examiner to contact the Applicants' undersigned representative at (312) 913-0001, if she believes that a discussion would expedite prosecution of this application.

Respectfully submitted,

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